



SPARSE ARRAY TECHNOLOGY FOR 3D SONAR IMAGING SYSTEMS



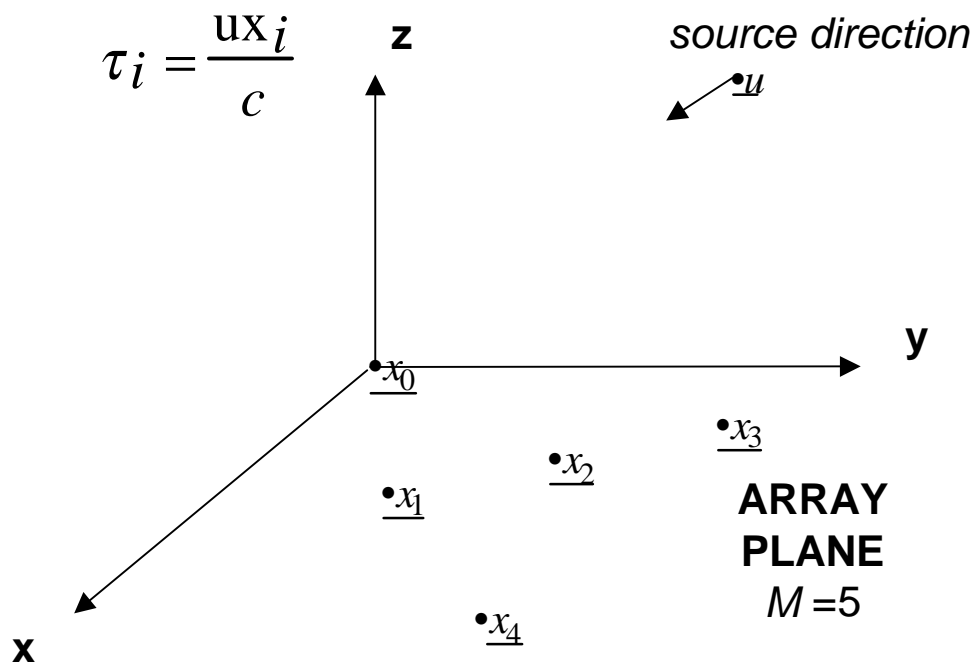
- Broadband Ultra-sparse Acoustic Arrays
- Final planar array 225 elements over $256 \lambda \times 256 \lambda$ area
- Bandwidth: 30% of center frequency, F_0

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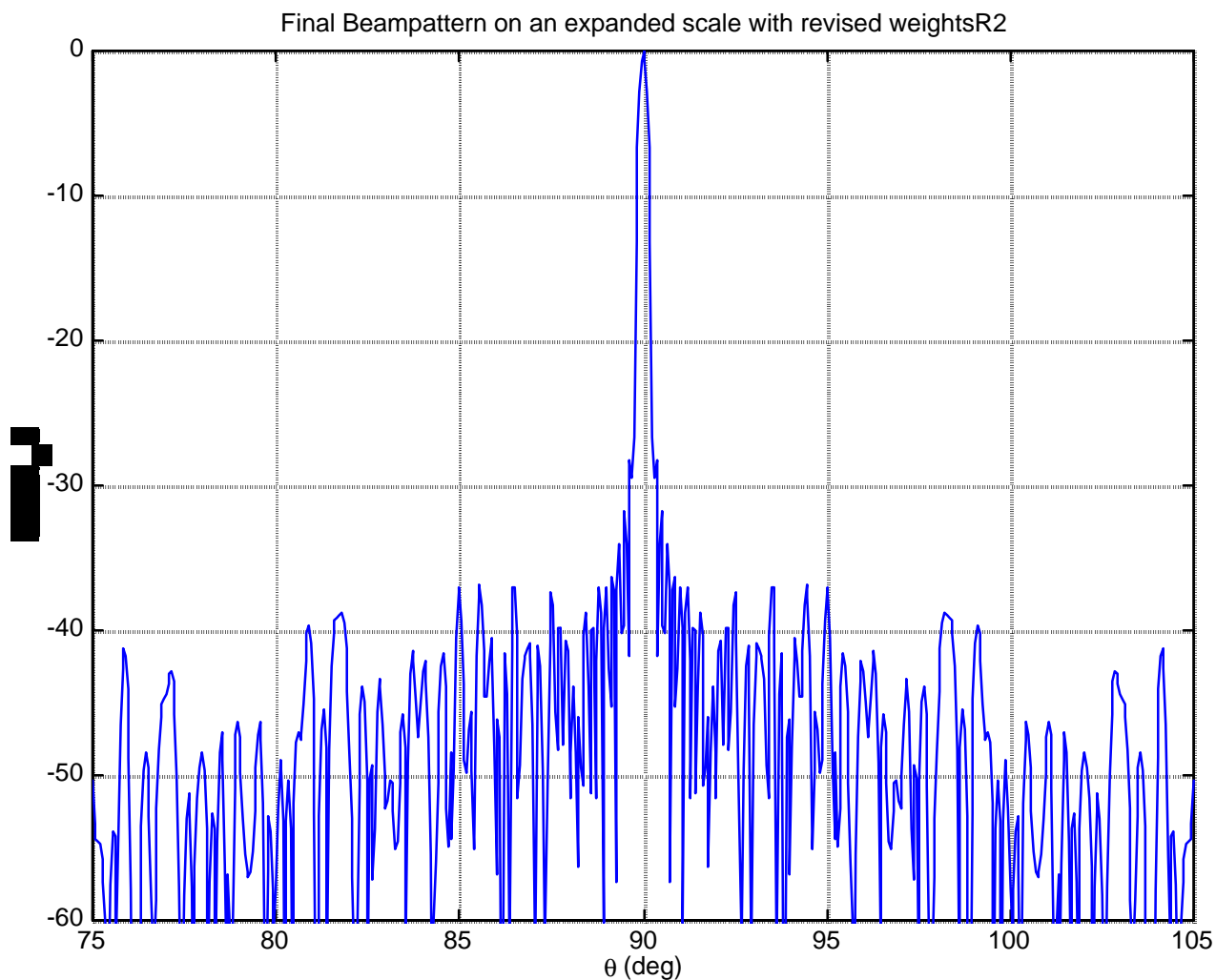
BROADBAND BEAMPATTERN

$$B(\Theta_x, \Theta_y) = \left(\sum_{i=0}^{M-1} w_i \cos(2\pi F_o \tau_i) \frac{\sin(\pi \tau_i W)}{\pi \tau_i W} \right)^2$$



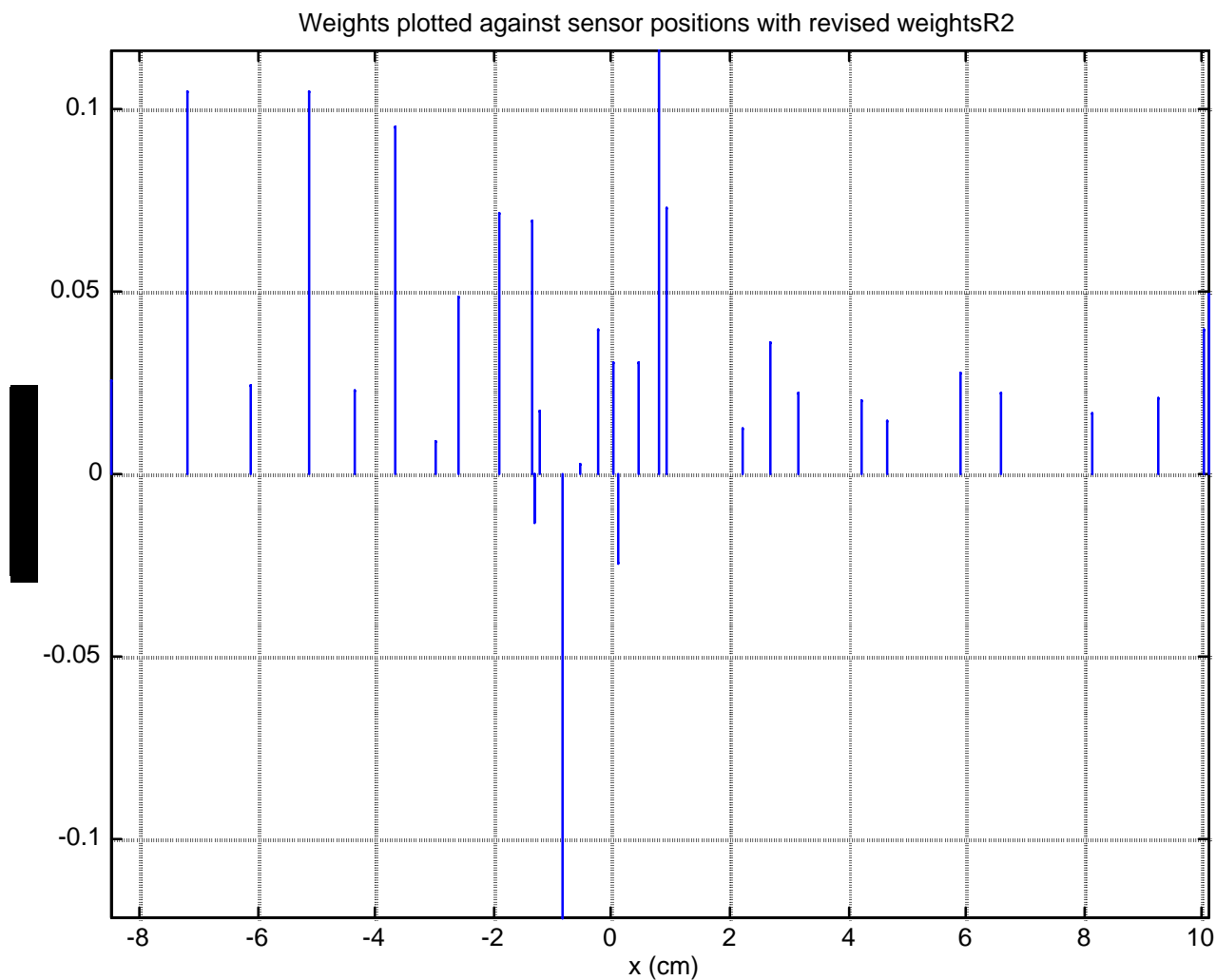


PROTOTYPE 1D ARRAY THEORETICAL BEAMPATTERN



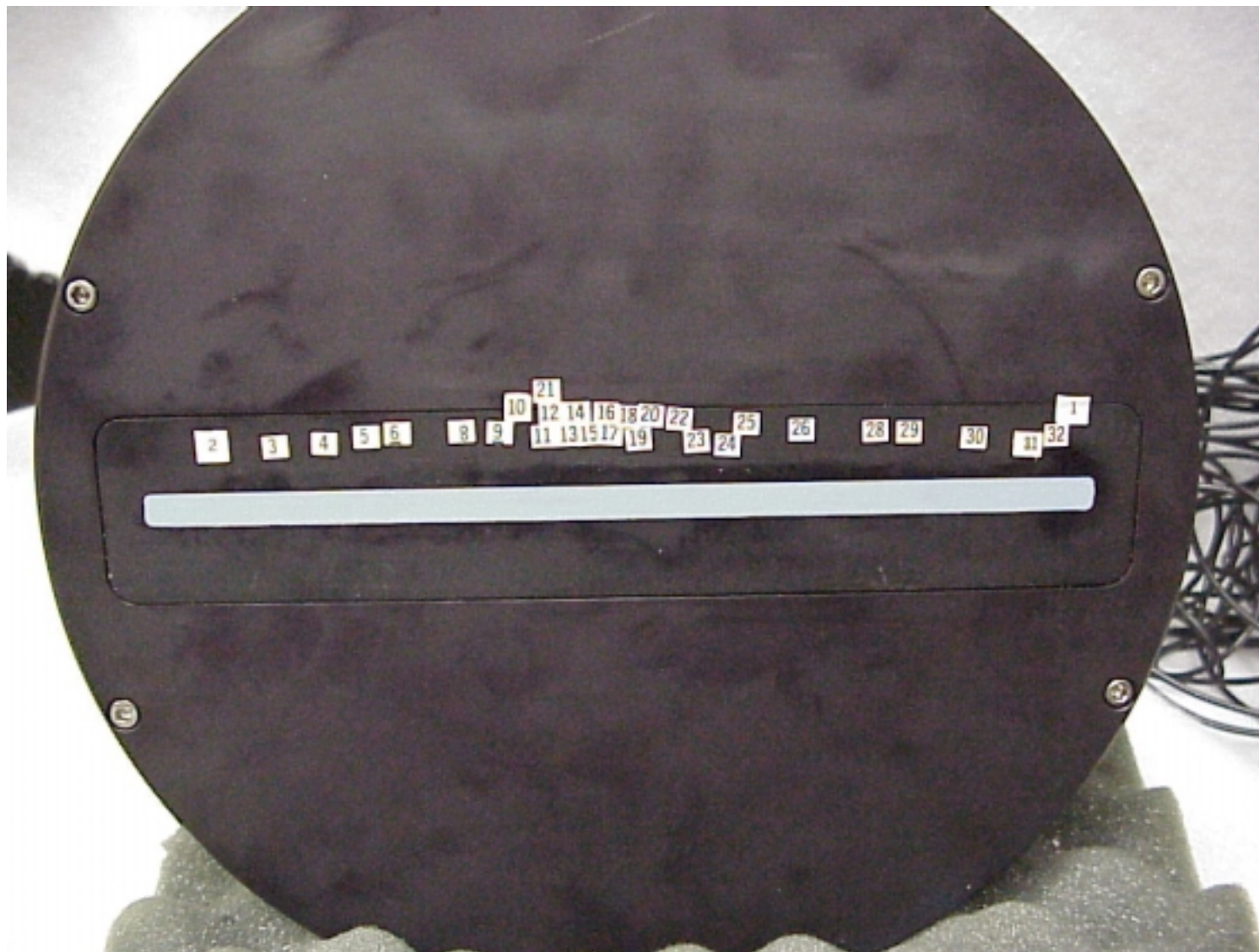


PROTOTYPE 1D ARRAY ELEMENT LOCATIONS & WEIGHTS





PROTOTYPE SPARSE LINEAR ARRAY





ACOUSTIC TEST FACILITY

